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ABSTRACT

The state-of-the art review suggests that human services agencies in rural areas can provide adequate staff training through the use of high technology training systems. Training equipment discussed includes: videotapes, microcomputers for computer-assisted instruction (CAI) or computer-managed instruction (CMI), solenoid-operated videocassette recorders coupled with computers, and the advantages of videodiscs for CAI and/or CMI. Results are reported from a 1979 survey of 400 companies which revealed that microcomputers for training could be successful and cost effective when: (1) the training problem was delineated and investigated before a computer system was advocated; (2) applications were individualized for learner needs; (3) projects were integrated with a larger educational environment; (4) training was integrated into the work environment; and (5) training programs were interactive with the student. Also provided is a description of the Florida Title IV-A Project, which is developing staff training packages and purchasing high technology training equipment to be used to upgrade the knowledge and skills of public service workers. It was concluded (from lessons learned thus far from the Project) that agency training staff must be thoroughly convinced of the advantages of using high technology equipment for it to be successful. (AH)

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Computer-Assisted Audiovisual Training Methods for Rural Staff Development Programs

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Abstract

Human service agencies are frequently unable to provide adequate staff training and development programs for employees because of shortages of training personnel and/or funds. This paper proposes that it would be more effective for rural agencies to utilize high technology training systems which incorporate microcomputers and videodisc players. A pilot project based on this approach is also described.

Background of the Problem

Stated as simply as possible, rural America has too many problems and too few resources (including trained social workers) to deal with those problems. Rural residents are twice as likely to be poor than are their urban cousins. While rural areas are home to less than 10% of the nation's population, they contain over 60% of the nation's substandard housing. There are fewer health, mental health, and social service facilities available in rural areas, and educational opportunities are lacking.[1]

While these social and economic problems are obviously more serious in rural than in urban communities, fewer trained social workers choose to live and work in rural communities. Despite the commonly-held notion that many professional persons are retreating to the "unpolluted" and "peaceful" lifestyle of country living, the concentration of social workers living in rural areas actually decreased in the decade between 1965 and 1975.[2] According to one study, only 16.8% of NASW members are employed in communities under 50,000 and only 4% live in communities of 4,000 or less.[3]

Graduate social workers, like other professionals, are well-educated, middle class persons who are generally attracted by the amenities and opportunities of urban living. Many others simply have a strong commitment to dealing with the problems of the urban community. The accreditation and proliferation of bachelor's degree programs in social work will certainly help to alleviate the professional social work manpower shortage in rural communities, but two problems will still persist: 1) There will remain a need for additional MSW graduates in rural communities, and 2) opportunities for staff development will never be as accessible as in the cities.

Because of the increasing number of graduate schools providing rural-focused educational programs,[4] there may eventually be more MSW's working in rural areas.[4] The problem of staff development is not one which is easily handled through formal degree programs, however. It is that problem on which the remainder of this paper shall focus.

Most social workers are keenly aware of their personal limitations and of the need to continually update, sharpen, and refine their practice skills. Urban social workers may do so by taking advantage of continuing education programs in schools of social work (or other relevant educational programs), short-term workshops sponsored by professional associations, private training institutes, or agency training programs. Of all of these opportunities, only the latter is likely to be available to the rural social worker, and then it may be less accessible, somewhat abbreviated, and of generally lower quality.

Providing the same amount and quality of staff training programs in rural areas through conventional means (i.e., face-to-face instruction with a trainer) can be prohibitively expensive because of the distances involved in transporting either trainers or trainees. One alternative is to employ high technology innovations (HTI) to train workers with either computer assisted instructional programs (CAI) or computer-managed instructional programs (CMI).[5]

New Staff Training Equipment

The use of videotapes for staff training has been commomplace in industry for many years, and it has become increasingly common in social service agencies within the past decade.[6] This media allows trainees to view almost any type of educational material on a television screen. Any type of training material which can be taped can be transported to a rural office for viewing.

Another significant technological advance which has implications for staff training is the development of the microcomputer. Computer-assisted instruction has been theoretically possible for many years, but the cost of tying up the central processing unit of a large computer made it economically unfeasible. Since the introduction of the microcomputer, however, it is now possible to purchase a complete package of basic training hardware (including the CRT and the microcomputer) for around $15,000.[7]

By 1979 microcomputers were being used in computer-assisted instruction programs to train pilots and flight crews at both American Airlines and United Airlines.[8] In addition Western Bancorp was using CAI to train 6,800 tellers and 1,500 other bank employees.[9] A survey of 400 companies using CAI in 1979 revealed that this method could be both successful and cost-effective when:

1) the training problem was delineated and investigated before a computer solution was advocated,
2) applications were individualized for learner needs,
3) projects were part of a larger educational environment and integrated with it,
4) training was integrated into the work environment, and
5) training programs were interactive with the student.[10]

Interactive learning requires both processing and feedback, both of which are easily done when the computer is tied to other media. One of the first interactive video systems was DAVID, designed by Video Associates Lab for the National Technical Institute for the Deaf. It coupled a WANG computer with a Sony U-matic videocassette recorder. Students could learn sign language at their own pace with full-motion visuals as well as other standard computer graphics. An industrial version of DAVID marketed by Computer Solutions, called RAVE, can couple any solenoid-operated

videocassette recorder to any microcomputer.[11]

Videodiscs are replacing tapes to some extent, however. In some industries videodiscs are now the predominant mode of audiovisual training. In 1979 General Motors purchased 7,000 videodisc players for staff training.[12] These players contained a microprocessor which could be pre-sequenced to follow any pattern of presentation desired. A remote control also allowed the user to slow down, speed up, or skip over material. The disc has several advantages over tapes:

1) Discs are smaller and lighter; easier to store or to mail.
2) Discs are practically indestructible, especially those read with laser beams.
3) Duplication time is much less.
4) Cost of duplication is less.
5) Speed of accessing a particular disc location is quite fast - usually no more than 2.5 seconds.[13]

The preparation of the master disc is more expensive than tape, however - about $5,000 per master - and the revision of a program requires remastering. Discs are more cost-efficient than tapes only when a large number of copies of highly standardized training material is needed.

The Florida Title IV-A Project

In April, 1981 the Florida Department of Health and Rehabilitativ services signed contracts with Florida State University and the University of West Florida which provided $500,000 per year to each institution for the development of staff training packages and the purchase of high technology training equipment. Under the mandate of Title IV-A, the training was to be directed at upgrading the knowledge and skills of public assistance workers (particularly employees in the AFDC program). The University of West Florida was to focus on training in the area of eligibility policy, and Florida State University was to provide training in interviewing and crisis intervention. The justification for the training programs was a federal mandate to reduce the error rates in eligibility and payments.[14]

The heart of this project is the utilization of high technology equipment. Both training packages will be developed for use on a training system consisting of a videodisc player, a CRT, and a microcomputer with interactive capability. The expected outcomes are training programs which the trainee will access from the videodisc through the computer. The trainee will specify exactly that portion of the package which is desired. During and after presentation of the training material, the trainee will be asked appropriate questions in order to determine whether the material has been adequately understood. If not, relevant portions of the material will be repeated or additional

aids will be presented.

The project has just completed the planning and equipment acquisition processes. Training problems have been identified and project staff are now developing training modules which will be presented with the new high technology equipment.

The Development of CMI for Human Services Training

There is little agreement among professional social workers or professional educators regarding the "proper" subjects for CAI and CMI. The traditional approach is to assume that certain kinds of knowledge and skills are best disseminated through the use of face-to-face instruction; and that computers are best utilized in learning situations where techniques or technology, not values, are the overriding concerns.[15] However, we are just beginning to discover that preliminary empirical research on learning indicates that computer-assisted instruction can be just as effective as lectures or seminars in many learning situations.[16]

Several guidelines for the use of CAI or CMI in staff training are suggested below as a way of proceeding until further research is more definitive concerning the appropriateness of these high technology approaches. Some are simply based on common sense and some on research while others are guided by the relatively brief experiences of the Florida Title IV-A project.

1. Computers and audio-visual equipment will not eliminate the need for human trainers. High technology equipment may perhaps reduce the need for face-to-face training to a manageable level. Trainers will always be needed to show other personnel how to utilize high technology innovations and to bridge the gap between learning and doing. Once new skills have been presented via computer and CRT, supervision will be needed as they are put into practice in order to provide adequate quality control. Because most human service staff will not be familiar with the equipment or the training methods, special care should be taken to present high technology training programs in a manner that is not overly threatening. To a rural social worker, a videodisc player interfaced with a computer with interactive capabilities may be quite foreign.

2. Training problems must be identified and defined before a computer system is adopted. There will undoubtedly be problems which are not appropriate for a high technology training approach, and there will be other problems which may be more appropriate for one specific HTI than another. For example, despite the disadvantages of videocassette tape, it may be a better medium than videodisc when the training package cannot be standardized for large numbers of trainees. Where variations need to be made for individual, regional or local training problems, the cost of remastering videodiscs may be prohibitive.[17]

3. The same principles of instructional design that are applicable in face-to-face instruction should be used in CAI and CMI. For example, after training needs are identified one must analyze the resources required for training, the resources available for training, and constraints that limit training and/or learning in that particular situation.[18] Skills being taught with high technology equipment should be factored into manageable components, i.e., eye contact, posture, verbal responses, etc.[19]

4. Computers and other high technology equipment cannot be expected to handle training problems that are due to an inadequate knowledge base. If workers can't be taught to deal effectively with client problems through face-toface instruction because the technology for effective helping does not exist in that situation, then the addition of CAI or CMI will be of no help.

5. Immediate improvement in worker performance should not be expected. Even though computer solutions may eventually lead to a higher level of performance, it is generally found that performance suffers in the short run, simply because of the unsettling effect of introducing new training methods.[20]

Conclusion

Perhaps the most important lesson learned thus far in the development of this training project is that the agency training staff must be thoroughly convinced of the advantages of using high technology equipment. In these days of budget cuts and uncertainties regarding funding, staff training programs are likely to be assigned even lower priority than client services. It is not difficult to understand why training staff may perceive the development of CAI, or CMI packages as the beginning of the end for face-to-face instruction, especially if it is more cost-effective.

Notes

1. Gwen K. Weber, "Preparing Social Workers for Practice in Rural Social Systems," Journal of Education for Social Work 12(Fall, 1976): 108-115.

2. Carlton E. Munson, "Urban-Rural Differences: Implications for Education and Training," Journal of Education for Social Work 16(Winter, 1980) 95-103.

3. Weber, "Preparing Social Workers," 109.

4. This assumes that students enrolled in rural oriented M.S.W. programs will practice in rural areas of course. Students who specialize in a particular method or client population frequently obtain employment in other areas, however.

5. Sandra Quesada, "Working Paper No. 1," Title lV-A Staff Training Project, Florida State University, School of Social Work, June, 1981.

6. David Katz, "Videotape Programming for Social Agencies," Social Casework 56(January, 1975): 44-51.

7. Estimates from Coloney Productions, Inc., Tallahassee, Fl.

8. Judson H. Smith, "Deliver More -- and Maybe Even Better -- Training for Less with Microcomputers," Training 16(September, 1979): 27-33.

9. Ibid.

10. Ibid.

11. Ibid.

12. Judson H. Smith, "An Eye-Opening Glimpse at Training's Newest Tool-- The Videodisc," Training 16 (August, 1979): 21-24.

13. Information from Colony Productions, Inc., Tallahassee, Fl.

14. Code of Federal Regulations, Part 205 and 235, Chapter 11, Title 45.

15. Ernest N. Gullerud, "From the Ivory Tower to the Practice Community: Three Approaches for Off-Campus Social Work Educational Programs," Journal of Continuing Social Work Education 1 (Winter, 1981): 9-14.

16. Ibid.

17. Smith, "An Eye-Opening Glimpse."

18. Robert M. Gagne and Leslie J. Briggs, Principles of Instructional Design (New York: Holt, Rinehart, and Winston, 1974).

19. Barbara Star, "Exploring the Boundaries of Videotape Self-Confrontation," Journal of Education for Social Work, Vol. 15 No. 1 (Winter, 1979), pg. 87-94.

20. Gagne and Briggs, Principles of Instructional Design.